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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/807,686	04/30/2002	Robert A Leydier	76.0531	2354
41754	7590	10/16/2009		
THE JANSSON FIRM 3616 Far West Blvd Ste 117-314 AUSTIN, TX 78731				
EXAMINER				
ARORA, AJAY				
ART UNIT		PAPER NUMBER		
2892				
MAIL DATE		DELIVERY MODE		
10/16/2009		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

09/07,686

Applicant(s)

LEYDIER ET AL.

Examiner

AJAY K. ARORA

Art Unit

2892

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3,5-7,10,12-17 and 19-32 is/are pending in the application.
- 4a) Of the above claim(s) 2 and 3 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,5-7,10,12-17 and 19-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

1. In view of the appeal brief filed on 09/24/2009, PROSECUTION IS HEREBY REOPENED. A new rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 5-7 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu (US 4,970,565), hereinafter Wu.

Regarding claims 1 and 20, Wu (refer to Figure 3) teaches a chip that may be used for a chip-containing portable article, comprising:

a silicon substrate layer (17) having an active face with circuits integrated therein defining memories (Col. 2, lines 58-68), and

an additional layer (18) of silicon (Col. 3, lines 12-17) that:

is sealed to the active face of the silicon substrate layer (17) by a sealing layer (comprising 51),

covers at least part of said active face (Col. 2, lines 51-54); and

comprises physical means for providing physical protection against the action of electromagnetic radiation (Col. 2, lines 51-54).

However, Wu does not teach that:

- a). the integrated circuits also define "a central processor unit"; and
- b). the said electromagnetic radiation is "in the infrared range at a wavelength longer than $1\mu\text{m}$ ".

Integrated circuits defining central processor units and associated memories are well known in the art. It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that Integrated circuits also define "a central processor unit". The ordinary artisan would have been motivated to modify Wu for at least the purpose of providing the device with a memory circuit functionality that can be controlled by a central processor unit, as is typical of many computing devices.

Wu teaches that the said electromagnetic radiation may not only be ultraviolet light, but also other light or radiant energy (Col. 2, lines 51-54 and Col. 4, lines 42-44), which encompasses light of a specific wavelength range such as the infrared range at a wavelength longer than $1\mu\text{m}$. It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that the physical means for providing physical protection against the action of electromagnetic radiation is adapted to electromagnetic radiation of a specific wavelength, such as electromagnetic radiation in the infrared range at a wavelength longer than $1\mu\text{m}$. The ordinary artisan would have been motivated to modify Wu for at least the purpose of providing protection to the device that may be sensitive to incident light of the specific wavelengths.

Regarding claim 5, Wu teaches that the means providing physical protection against the action of electromagnetic radiation may be silicon dopants (Col. 3, lines 12-16).

Regarding claim 7, Wu teaches that the silicon dopants may be boron (Col. 3, lines 12-16).

5. Claims 6, 21-23 and 26-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Kuehnle (US 5,534,056), hereinafter Kuehnle.

Regarding claim 6, Wu teaches substantially the claimed structure including the silicon dopants (Col. 3, lines 12-16), but does not teach the claimed concentration of silicon dopants; i.e. concentration in the range 10^{17} to 10^{20} atoms per cm^3 . Kuehnle teaches that the extent of shielding provided by a doped semiconductor material depends on the dopant concentration and the wavelength of light from which shielding is desired (Col. 15, lines 15-35). Accordingly, it would have been obvious to one of ordinary skill in art to combine Wu in the range as claimed, because it has been held that where the general conditions of the claims are disclosed in the prior art, it is not inventive to discover the optimum or workable range by routine experimentation. See MPEP 2144.05. The ordinary artisan would have been motivated to modify Wu for at least the purpose of optimizing protection to the device with respect incident light of a specific wavelength (such as electromagnetic radiation in the infrared range at a wavelength longer than $1\mu\text{m}$) which the device may be expected to be exposed to.

Regarding claims 21-23, Wu (refer to Figure 3) teaches that the silicon substrate layer (17) comprises physical means for providing physical protection against the action of electromagnetic radiation (Col. 2, lines 51-54), wherein said physical means of the silicon substrate layer comprises silicon dopants in the silicon substrate (Col. 2, lines 54-61 and Col. 3, lines 12-16), which includes the face of the silicon substrate layer that is opposite to the active face.

However, Wu does not teach that the concentration of the silicon dopants lies in the range recited in claim 22 and that the silicon dopants are phosphorous or boron (as recited in claim 23). These limitations have already been addressed in the rejection of claims 1 and 6-7.

All limitations of claims 26-28, respectively, have been addressed in the rejection of claims 21-23, respectively.

6. Claims 10, 12-13, 24 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of Kobachi et al. (US 5,811,797) of prior record, hereinafter Kobachi.

Regarding claims 10, 12-13 and 24, Wu teaches substantially the claimed structure, but does not teach that the physical means "for providing physical protection against the action of electromagnetic radiation are formed by surface irregularities". Kobachi (refer

to Figure 22) teaches a semiconductor chip package wherein a physical means for providing protection against the action of electromagnetic radiation (Col. 15, lines 3-10) are formed by surface irregularities (345) in the physical means. It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that the physical means for providing physical protection against the action of electromagnetic radiation are formed by surface irregularities and that the said surface irregularities are provided in all faces of a shielding layer (the additional layer of silicon or silicon substrate of Wu); i.e. including the faces recited in claims 12, 13 and 24, to increase shielding effectivity. The ordinary artisan would have been motivated to modify Wu for at least the purpose of using the irregularities to scatter the unwanted incident electromagnetic radiation (see Kobachi, Col. 15, lines 3-10) in all surfaces of the shielding layer and thus increase the shielding effectiveness.

Claim 29 is similar to claim 24 and hence the same rejection applies.

7. Claims 14-17, 19 and 30-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu in view of IDS reference Ishikawa (US 5,394,014), hereinafter Ishikawa.

Regarding claims 14 and 16-17, Wu teaches that the physical means for providing physical protection against the action of electromagnetic radiation may be formed by the additional layer of silicon or at least one deposition of metal, but does not teach that the

above two may be used together; i.e. "by at least one deposition of metal on the additional layer of silicon". Ishikawa teaches that physical means for providing physical protection against the action of electromagnetic radiation may be formed by at least one deposition of metal on a layer of silicon-based material (Col. 4, lines 55-60). It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that the physical means for providing physical protection against the action of electromagnetic radiation is formed by at least one deposition of metal on a layer of silicon-based material or similarly by stacking one metal layers on each side of the silicon-based material (to further increase shielding effectiveness), as recited in claims 16 and 17. The ordinary artisan would have been motivated to modify Wu for at least the purpose of increasing shielding effectiveness by using shielding by both reflection and absorption of the electromagnetic radiation (Col. 4, lines 59-60), and using multiple, stacked shielding layers, which further increases shielding effectiveness..

Regarding claims 15 and 19, Wu teaches substantially the claimed device but does not teach the claimed metal deposition thickness of "greater than 50 Å" (as recited in claim 15), or "about 100 Å" (as recited in claim 19). Ishikawa teaches that thickness of a light shielding layer is a known variable in the shielding effectiveness of the shielding layer and that it is desirable for the shielding layer to be thin (Col. 2, lines 38-43, 49-55 and 61-66). It would have been obvious to one having ordinary skill in the art at the time the inventions was made to modify Wu such that the metal deposition has a thickness as

claimed, since it has been held that discovering an optimum value of a result effective variable (the metal thickness in this case, which can be optimized for a specific device requiring shielding from electromagnetic radiation of a specific wavelength and intensity) involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Regarding claim 30, Wu (refer to Figure 3) teaches a chip that is capable of functioning for a chip-containing portable article comprising:

a silicon substrate layer (17) having an active face with circuits integrated therein defining memories (Col. 2, lines 58-68); and

physical means for providing physical protection against the action of electromagnetic radiation (Col. 2, lines 51-54) comprising deposition of metal (18) on a face of the silicon substrate layer.

However, Wu does not teach that:

- a). that the integrated circuits also define "a central processor unit"; and
- b). that the said electromagnetic radiation is "in the infrared range at a wavelength longer than $1\mu\text{m}$ ".
- c). that the metal is on the face of the silicon substrate layer "that is opposite to the active face".

Limitations a and b have already been addressed in the rejection of claim 1.

Ishikawa teaches that a light shielding layer (31 of Figure 4 or 61 of Figures 6-7) may be applied on any face of a silicon substrate (2 of Figures 1 & 3-5 or 62 of Figure

6). It would have been obvious to one of ordinary skills in the art at the time of the invention to modify Wu such that the metal (i.e. light shielding layer) is on a specific face, such as the face of the silicon substrate layer that is opposite to the active face. The ordinary artisan would have been motivated to modify Wu for at least the purpose of providing a shielding layer (or an additional shielding layer to increase shielding effectiveness) on any face (or all faces) which may be susceptible to electromagnetic radiation from which protection is sought.

Regarding claims 31 and 32, Wu teaches substantially the claimed device but does not teach the claimed metal deposition thickness of "greater than 50 Å" (as recited in claim 31), or "about 100 Å" (as recited in claim 32). Ishikawa teaches that thickness of a light shielding layer is a known variable in the shielding effectiveness of the shielding layer and that it is desirable for the shielding layer to be thin (Col. 2, lines 38-43, 49-55 and 61-66). It would have been obvious to one having ordinary skill in the art at the time the inventions was made to modify Wu such that the metal deposition has a thickness as claimed, since it has been held that discovering an optimum value of a result effective variable (the metal thickness in this case, which can be optimized for a specific device requiring shielding from electromagnetic radiation of a specific wavelength and intensity) involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Response to Arguments

8. Applicant's arguments with respect to claims 1, 20, 26, 29, 30 and their dependent claims have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AJAY K. ARORA whose telephone number is (571)272-8347. The examiner can normally be reached on Mon through Fri, 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thao X. Le can be reached on (571) 272-1708. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/A. K. A./
Examiner, Art Unit 2892

/Thao X Le/
Supervisory Patent Examiner, Art
Unit 2892